



# MISO Update

*Missouri Public Service Commission*

July 25<sup>th</sup>, 2018

# Key Takeaways and Agenda

The MISO-OMS Survey and generator interconnection queue provide an outlook for the supply-demand balance and resource expectations over the next five years.

- MISO-OMS Survey
- Generation Interconnection Queue

MISO is focused on enhancing our markets and transmission planning efforts in preparation for the changing portfolio

- Distributed Energy Resources
- Transmission Cost Allocation Proposal

Seams processes are key to providing reliable, least cost energy to customers and will become even more important going forward

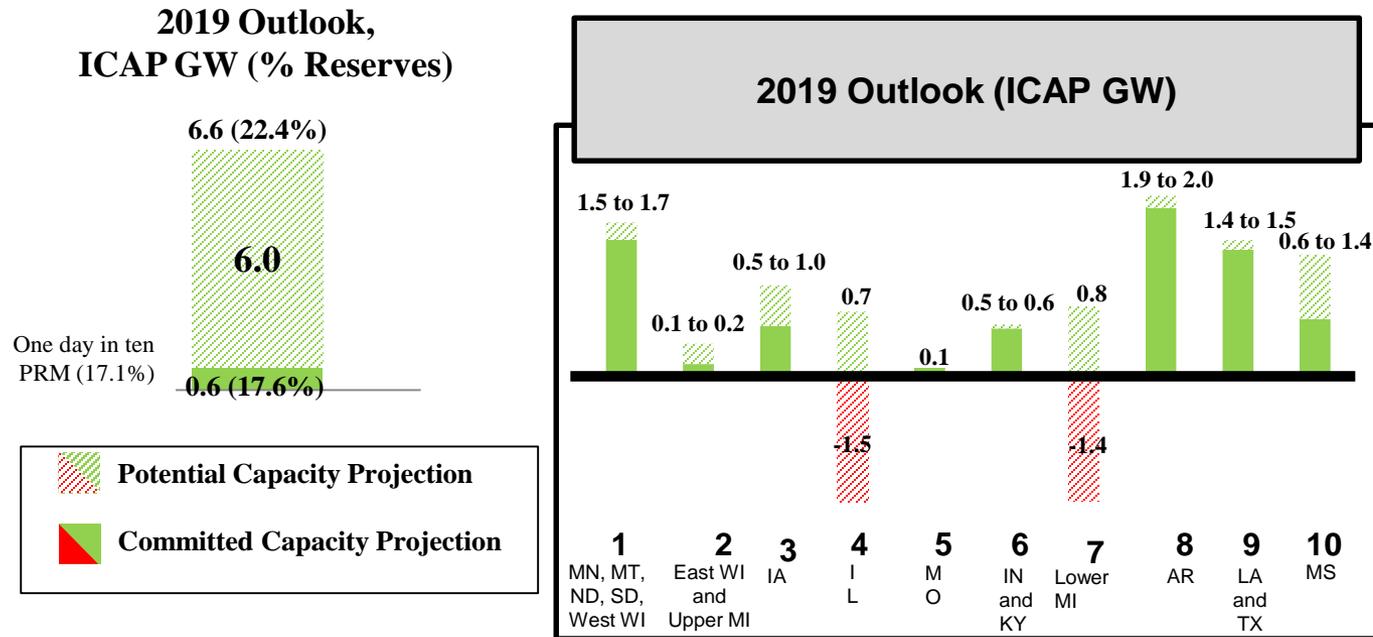
- MISO-SPP Interregional Planning
- January 17<sup>th</sup> Event

# MISO/OMS Survey

MISO Region is projected to have adequate resources to meet its Planning Reserve Requirement for 2019; continued action will be needed to ensure sufficient resources are available going forward

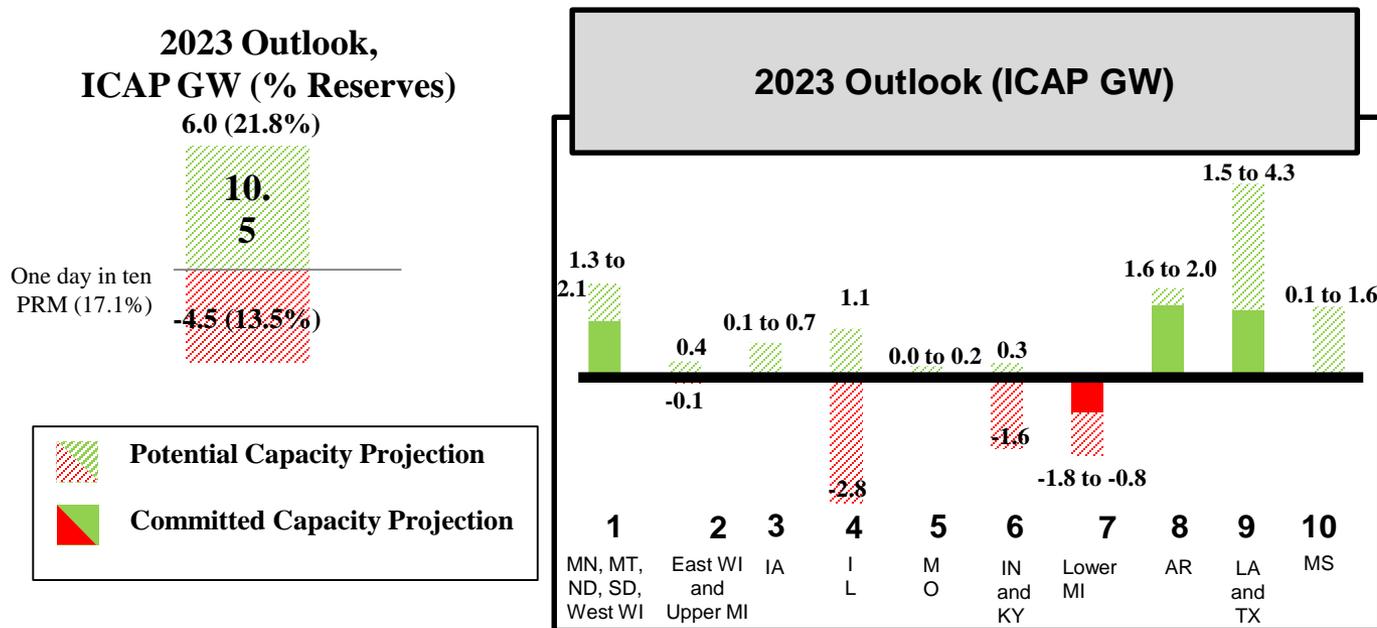
- The region is projected to have 0.6 GW to 6.6 GW resources in excess of the regional requirement, based on responses from over 97% of MISO load
- Beyond 2019, decrease in resource commitments could lead to more risk to resource adequacy than previously projected
  - Lower resource commitments are mainly focused in Zones 4 and 7
  - Fewer resource commitments lead to higher likelihood of using emergency resources
- Demand forecast continues to decrease similar to previous projections
  - 2019 summer peak forecasts decreased 1.5 GWs from 2017 projections
  - Regional 5 year growth rate is 0.3%, down from 0.5% last year

# In 2019, regional surpluses are sufficient to cover areas with potential resource deficits



- The MPSC recently made a determination that the Michigan LSE's have adequate resources (owned or contracted) to meet projected resource adequacy through 2021, this aligns with the upper range of the OMS MISO survey projections for zone 7
- Regional surpluses and potential resources are sufficient for all zones to serve their deficits while meeting local requirements
- Positions include reported inter-zonal transfers, but do not reflect other possible transfers between zones
- Exports from Zones 8, 9, and 10 were limited by the Sub-regional Power Balance Constraint

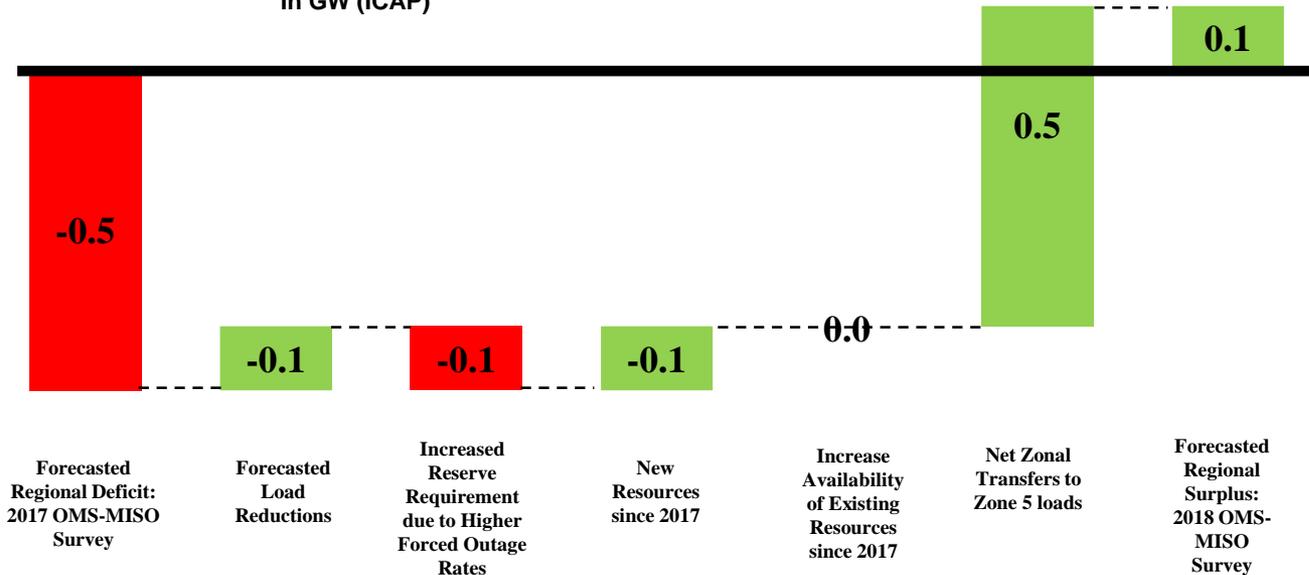
# Continued focus on load growth variations and generation retirements will reduce uncertainty around future resource adequacy assessments



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# Zone 5 capacity balances were impacted by newly reported zonal transfers

**Regional 2019 Outlook  
Committed Capacity Projection Variations  
since 2017 OMS MISO Survey**  
In GW (ICAP)

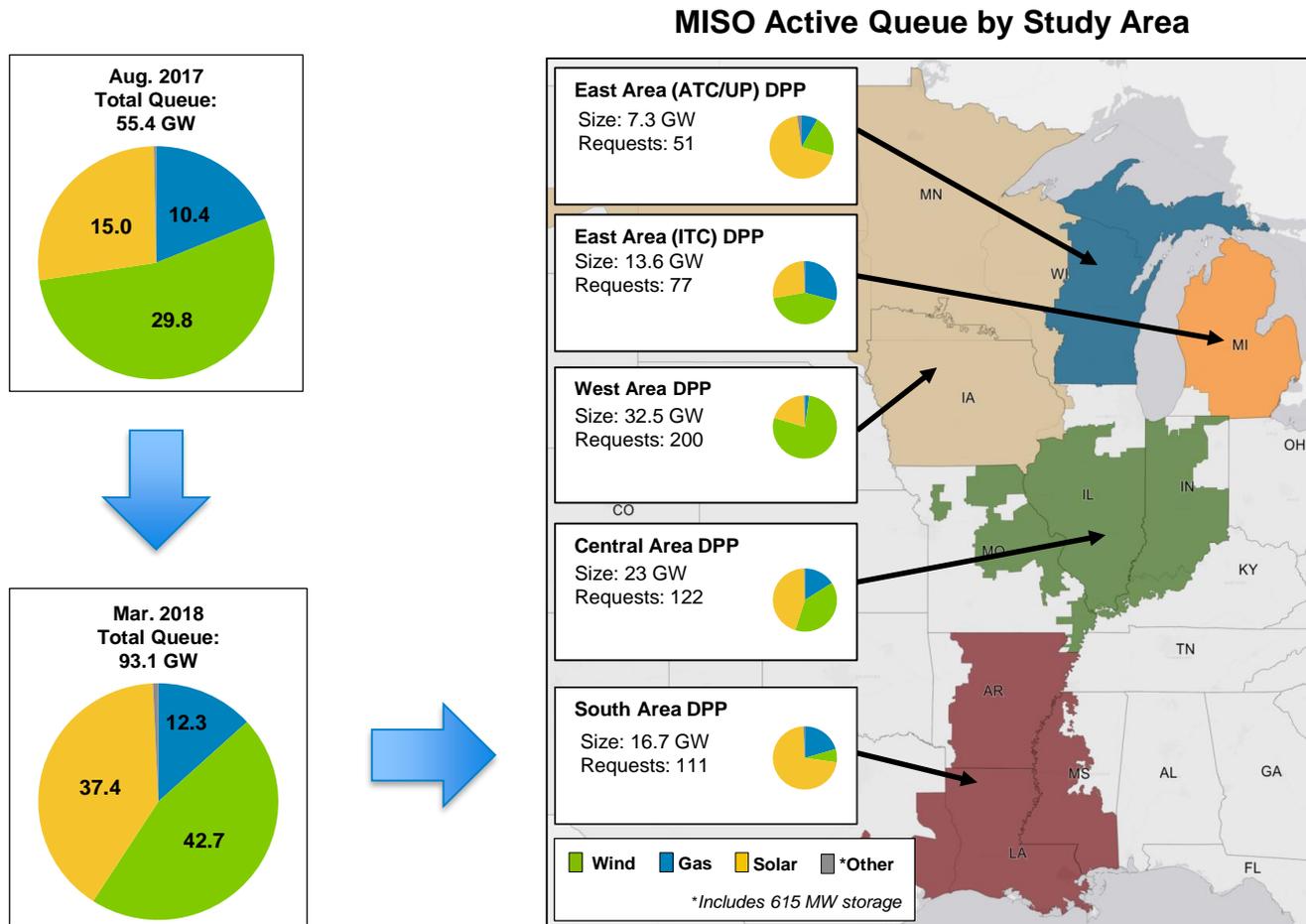


**New resources** include resources with newly signed Interconnection Agreements and new Load Modifying Resources

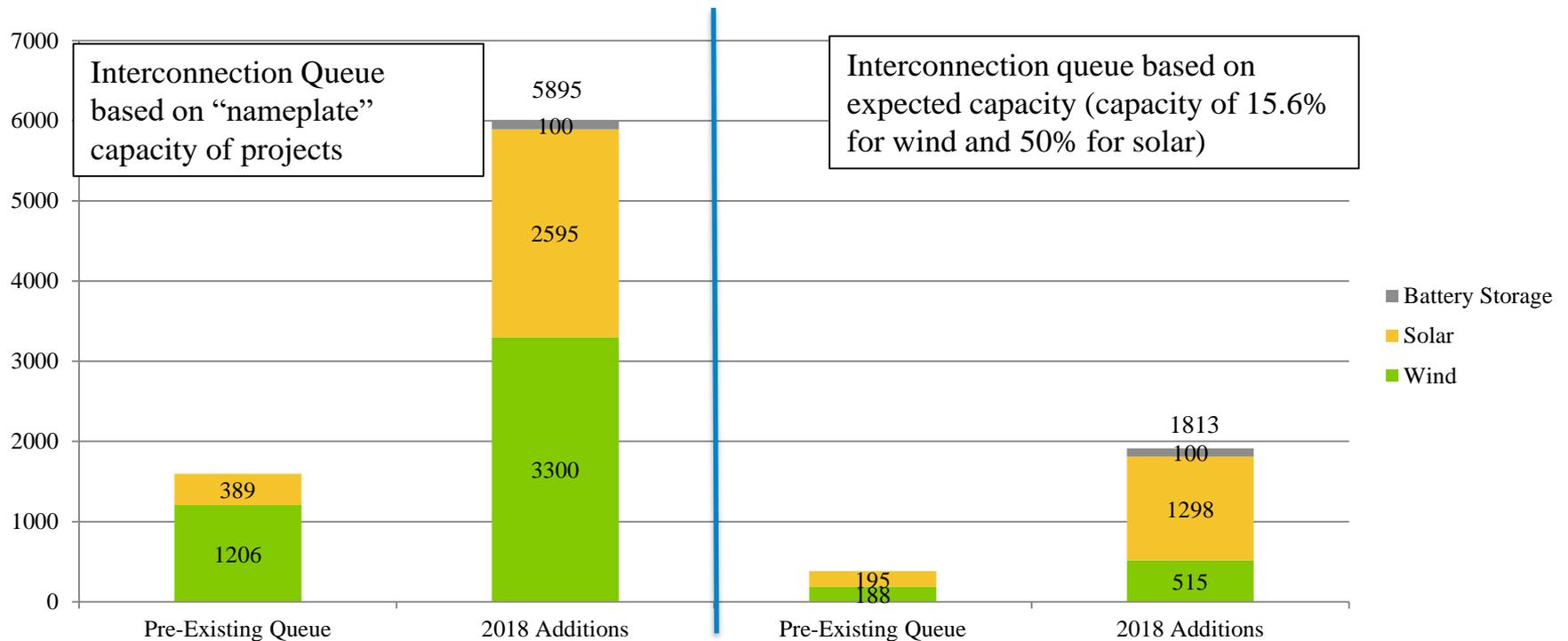
**Decreased availability** results from new retirements and potential retirements

# Generation Interconnection

# The MISO region must prepare for the fleet transition indicated by the interconnection queue



# Missouri Generation Interconnection Queue



\*All quantities rounded to the nearest MW

# Distributed Energy Resources

## Focus Areas for DER enhancements

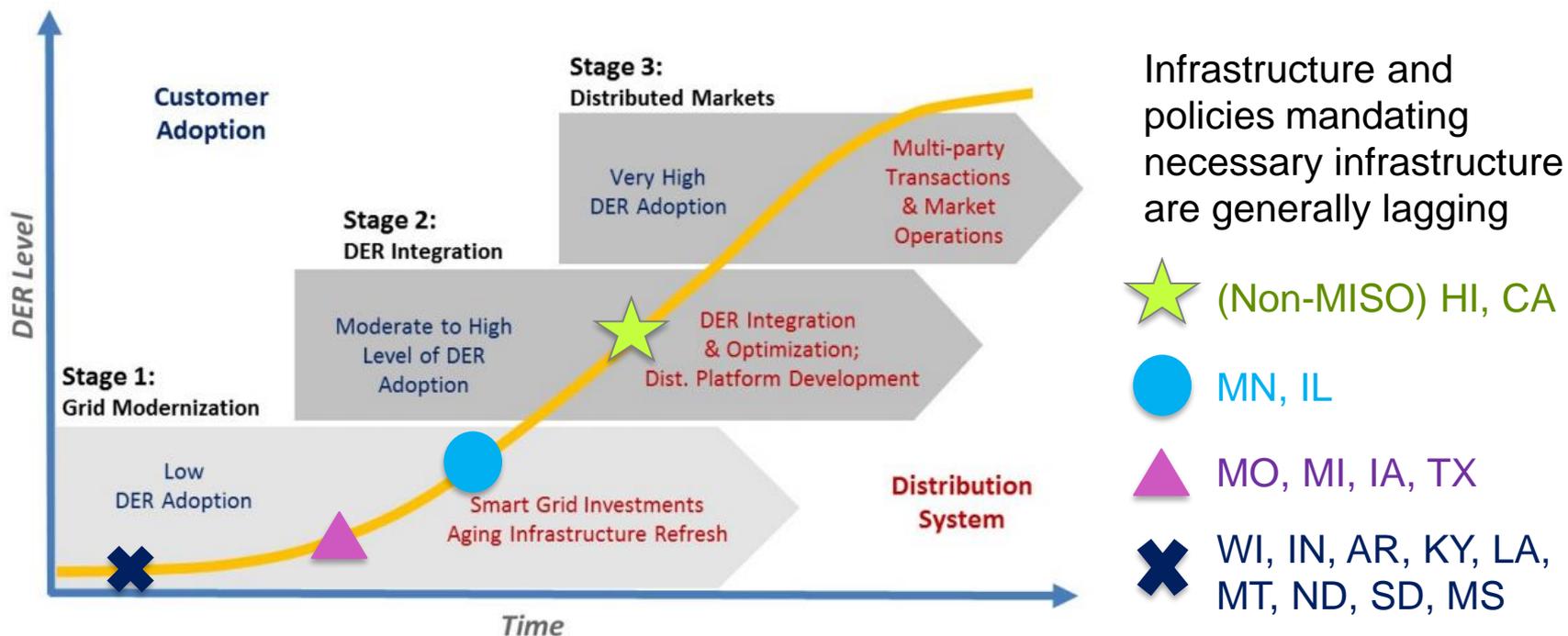
Promote flexibility and build on FERC's long record of supporting tailored approaches

Facilitate regional coordination between RTOs, States, and distribution utilities

Support MISO's efforts to build a product that ensures reliability and promotes market efficiencies

# Encouraging FERC to allow regionally different needs for value drive priorities

States in MISO's Footprint are at the low end of the DER adoption curve

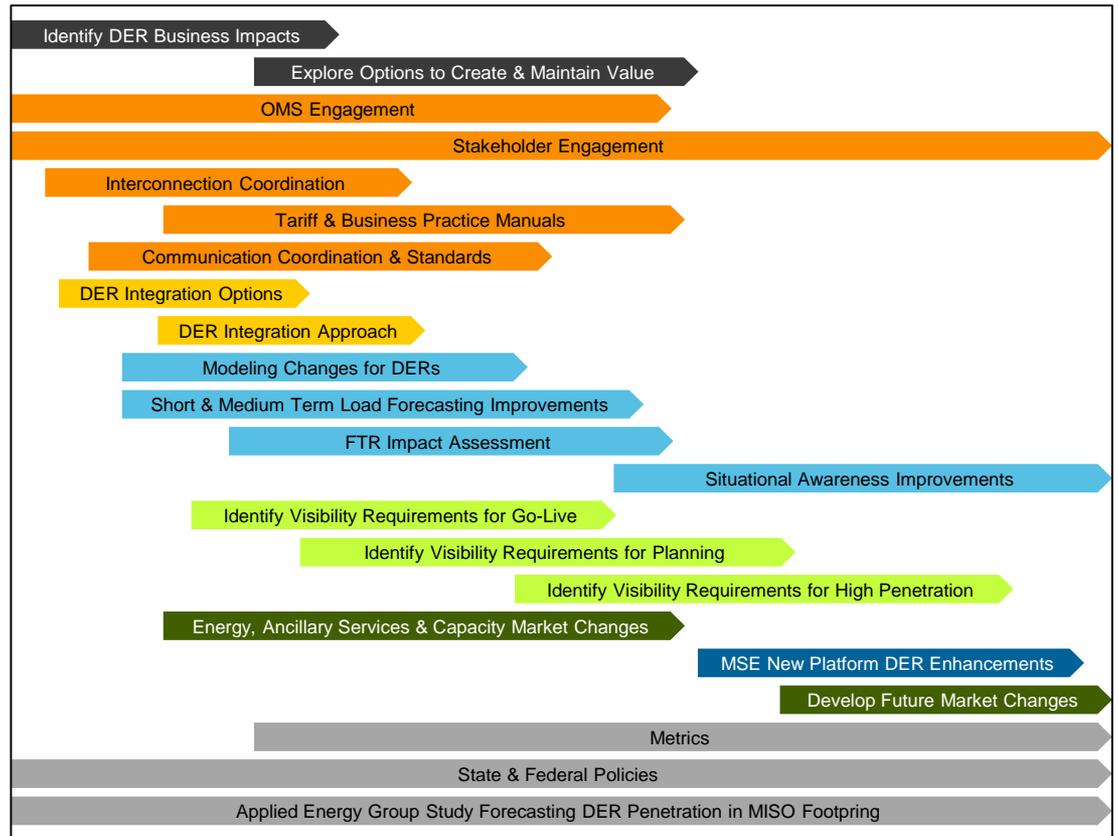


LBL: The Future of Electric Utility Regulation – Three Phases of Grid Evolution

## DRAFT Illustrative Five Year Timeline

MISO and OMS are coordinating on Distributed Energy Resource integration with **reliability** as chief focus

DER integration is significantly more complex than historic market enhancements



Areas of Need:

Business Model	Market Participation	Integration Approach	System Enhancement
Governance & Policy	Tool Enhancement	Visibility Enhancement	Monitor

## Conclusion

- There is no need for a short timeframe for DER orders
- Flexibility, coordination and reliability are critical
- MISO has significant initiatives focused on DER integration, including technical R&D and state policy engagement

# Transmission Cost Allocation Reforms

# MISO Cost Allocation Proposal: June 2018

Aligns who pays with who benefits over time from a regional transmission expansion perspective.

Represents changes that address identified cost allocation issues, seeks to improve the alignment of costs and benefits for future regional transmission projects, and considers the diverse positions of stakeholders.

MISO is targeting filing tariff changes by the third quarter of 2018, with an effective date of January 1, 2019.

# Notable Changes in the Cost Allocation Proposal

- Regional Projects

- Lower Market Efficiency Project (MEP) voltage threshold to 230kV
- Create new project category for economic projects below 230kV
  - 100% allocation to local Transmission Pricing Zone
  - Name: Local Economic Project
  - Include local zone B/C ratio criteria of 1.25
- Eliminate 20% postage stamp component from MEP cost allocation

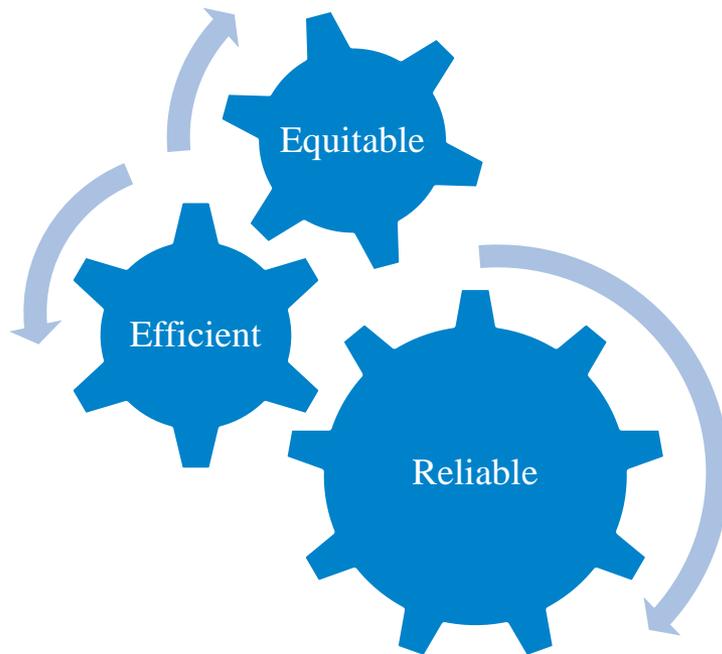
- Interregional Projects

- Lower the voltage threshold for interregional MEPs to 100kV on both the PJM and SPP seam

# MISO-SPP Interregional Planning

# Seams processes are key to providing reliable, least cost energy to customers and will become even more important going forward

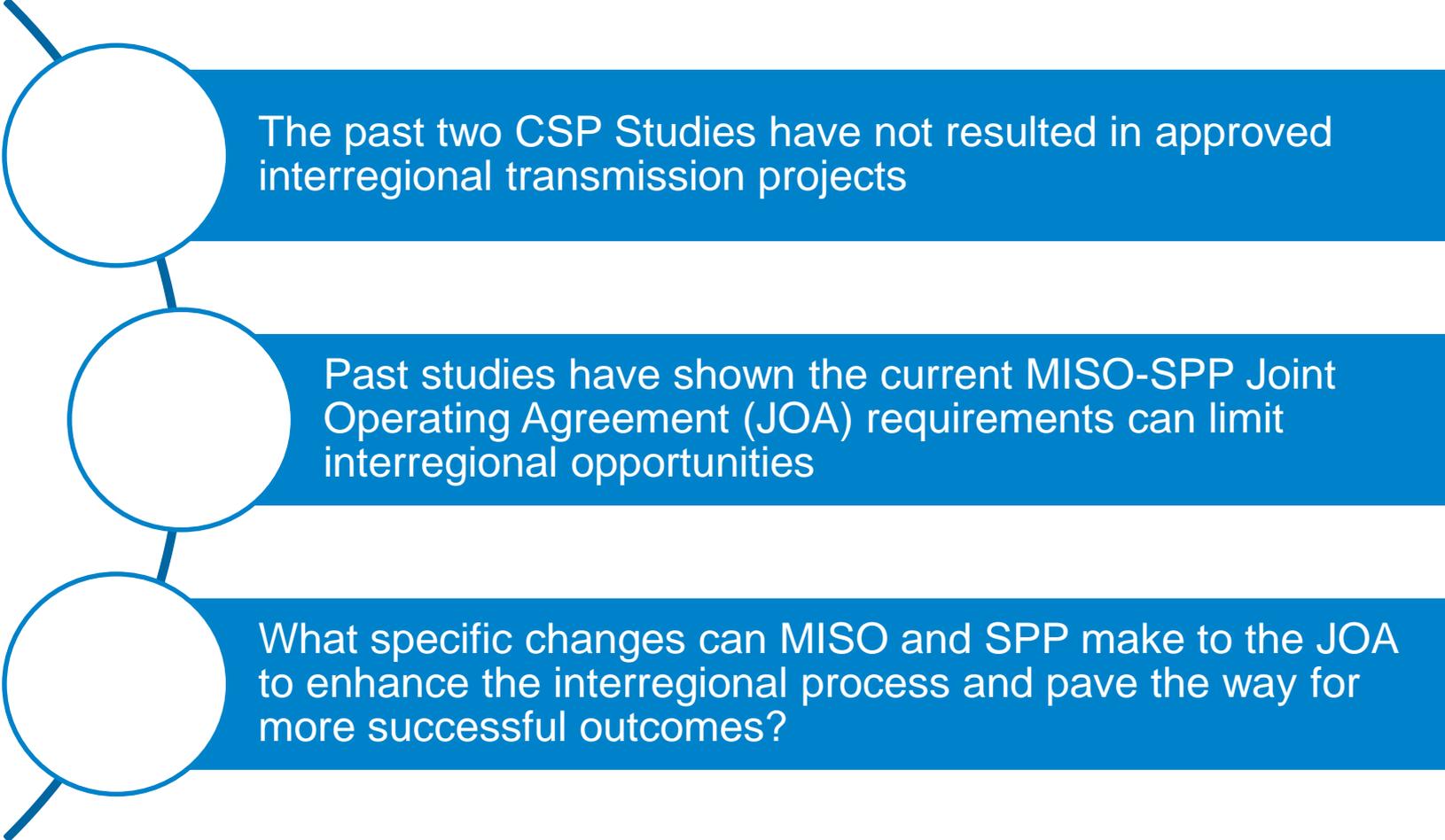
## Key Attributes of Seams Processes



## Importance of Seams Processes Going Forward

1. Managing the evolving resource portfolio and tightening reserve margins
2. Realizing the benefits of the Order 1000 transmission planning process
3. Ensuring we have an equitable process for managing parallel flows across the Eastern Interconnect

# MISO and SPP have performed two Coordinated System Plan (CSP) Studies



The past two CSP Studies have not resulted in approved interregional transmission projects

Past studies have shown the current MISO-SPP Joint Operating Agreement (JOA) requirements can limit interregional opportunities

What specific changes can MISO and SPP make to the JOA to enhance the interregional process and pave the way for more successful outcomes?

# Enhancing the Interregional Study Process

***Modifying the JOA to eliminate barriers to getting mutually beneficial projects approved will allow the studies to be more effective and successful.***

## Specific changes to the JOA will foster increased interregional opportunities

- Remove the \$5M cost threshold
- Remove joint model requirement & legacy APC methodology
- Adding an avoided cost benefit metric

## Why these enhancements?

- Closer alignment of interregional evaluation outcome with regional review results
- Significant efficiency gains achieved
- Increases potential mutually beneficial projects to be evaluated

## Historical Studies & Precedent

- Proposed low cost beneficial projects unable to be studied (i.e. 2016-2017 Study \$500k Lawrence-Sioux Falls 115 kV Terminal Equipment Upgrades)
- Joint models increases time and effort required to build models and perform analysis (i.e. 2016-2017 CSP Study took nearly 18 months )
- MISO/PJM, NYISO/ISONE/PJM implement similar changes; independently & FERC directed

# January 17<sup>th</sup> Event

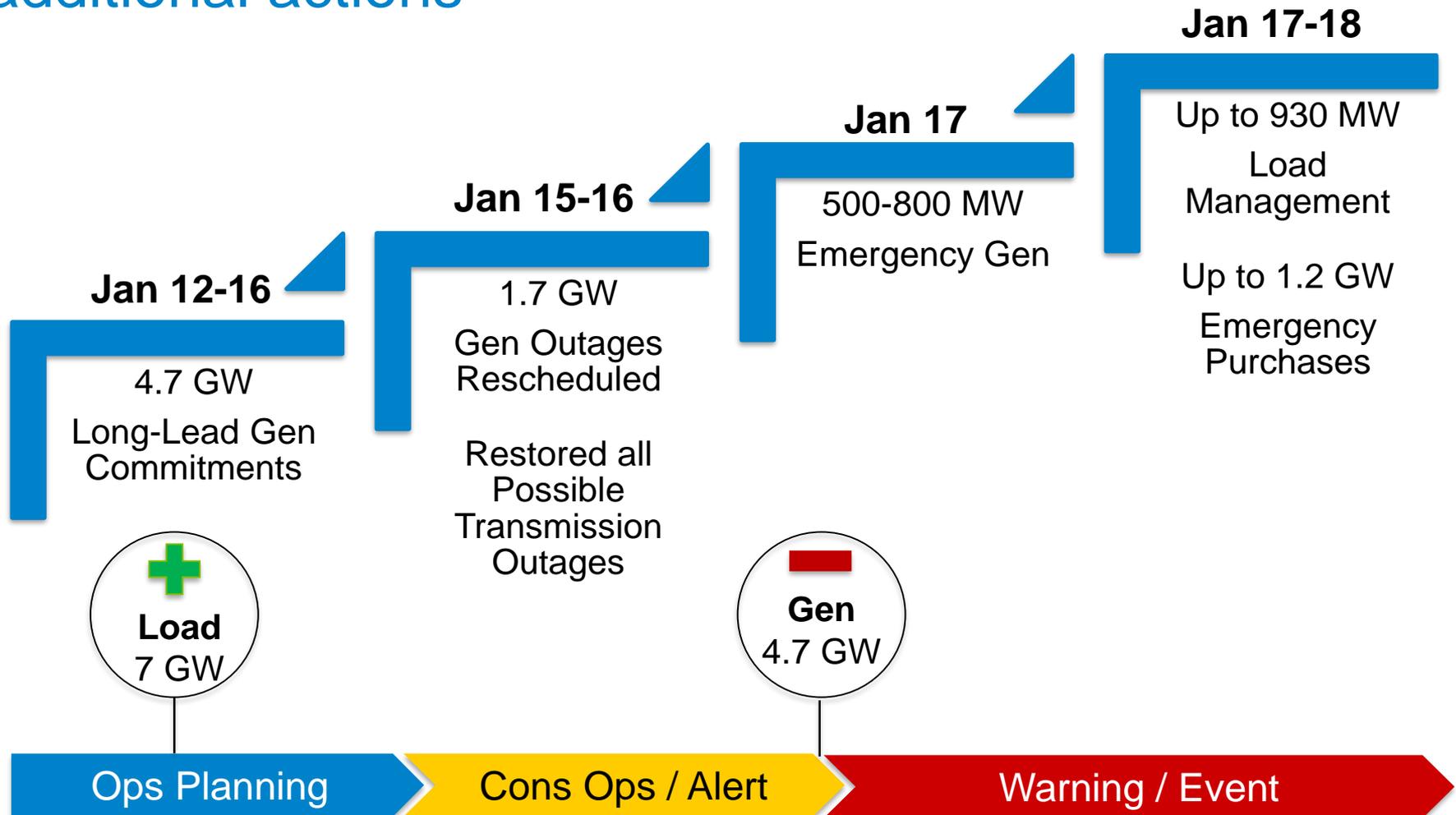
MISO spends a lot of time preparing for emergency situations



# Record low South temperatures, high load, and unavailable generation contributed to operating challenges throughout the week of January 15

- **Extreme Cold Temperatures and Atypical Load**
  - Below average temperatures for the South Region challenged load forecasting and drove higher than normal load
- **Outages**
  - Forced generation outages and delayed outage returns intensified already tight conditions
- **Neighboring systems in the South experienced similar conditions**
  - MISO communicated with neighbors during the event on real time conditions

# MISO prepared for high load days in advance. In Real-Time, unplanned generator outages required additional actions



# MISO, SPP, and Joint Parties have been meeting to discuss lessons learned and areas for enhancement

